

module, an active file manager module, a file differencing module, a block differencing module, a data transfer module, and a restore module (Fig. 3) Gold and Bathie specifically note that for the purposes of their discussion of their system for performing backups and restores for a computer network, no distinction is drawn between clients and servers, referring to both as clients throughout their application and stating that all clients operate in the same manner (Col. 4, lines 45-51).

The backup server comprises a set of software modules for performing backups and restores for a computer network (Col. 11, lines 7-9). Client and server backup agents communicate requests for backups and restores, but the backup server performs the actual backups and restores (Col. 4, lines 42-44). Backup server modules include a backup dynamic scheduler, a redundant file elimination module, a backup storage module, a merge control module, a tape backup module, and a disaster recovery module (Fig. 5). The backup server also includes a hard disk drive and a tape drive which are used to backup and store data received from the clients (Col. 4, lines 42-44).

Regarding the anticipation rejections over Gold and Bathie, the applicants respectfully disagree that Gold and Bathie describe the present invention as claimed. There are a number of differences between the methods and systems as described and claimed in the present application and Gold and Bathie, several of which are now discussed. Referring to independent claim 1, Gold and Bathie do not describe a first software agent that runs on a first computing unit controlling a second software agent running on a second computing unit which controls physical backup of data on at least one storage device. In one embodiment of this arrangement as described in the application, multiple clients and servers are connected via a LAN to a single management component. The management component is connected to and controls one or more

independent media components. Each media component is connected to and controls one or more storage devices on which client and server data is backed up and stored.

Claim 1 thus discloses at least a two-tiered architecture for performing backups and restores for a computer network with the first software agent comprising a first tier, and the second software agent comprising a second tier. Gold and Bathie, by contrast, only describe a single-tiered architecture for performing backups and restores for a computer network with the backup server comprising the entire tier. Backup agents in Gold and Bathie do not comprise an additional tier because they do not actually perform backups and restores and do not control the backup server (Col 4, lines 30-44). As further discussed below, this distinction enables the present invention to more efficiently perform backups and restores for a computer network, and represents an improvement over existing systems which is not described by Gold and Bathie.

The use of a first software agent that controls one or more second software agents that control physical data backup allows the first software agent to coordinate the usage of storage media and act like a directory service identifying which second software agent a specific client backup request should be serviced. The first software agent may also function as the system's central controlling element to direct backups and restores for the computer network.

Second software components, such as media components, however, direct the actual backup of the data from the client onto the storage media as instructed by the first software agent. These second software components are responsible for the physical backing up of the data and indexing the data of the information being archived. The first software agent is thus able to allocate the processing requirements necessary to backup and restore data to the second software agent instead of to itself. This architecture allows for most of the information regarding the backed up data to be kept local to the specific second software agent that is

responsible for the backup of the data. Eliminating the bottleneck and processing requirements at the first software agent allows for saving network and communication overhead and localizing and decentralizing the internals of the indices to the locus of storage. Backups and restores for the computer network may thus be effectively load balanced by the first software agent and spread across many second software agents as necessary.

The system discussed in Gold and Bathie, by contrast, does not have the ability to load balance backups and restores for the computer network. As discussed, Gold and Bathie present only a single-tiered network architecture (Col. 4, lines 30-50). Unlike the second software agents of claim 1, which are separate from the first controlling software agent, the backup storage module and the tape backup module in Gold and Bathie are integral parts of the backup server.

Indeed, the second software agent of claim 1 eliminates the performance issues associated with the very architecture discussed in Gold and Bathie. In the present invention, as network traffic for backups and restores increases, additional second software agents, such as media components, can be added to load balance the additional traffic and maintain optimal network performance. The system discussed in Gold and Bathie, however, does not offer this advantage. The single backup storage module of the backup server and the single tape backup module of the backup server in Gold and Bathie are responsible for all of the network backups and restores. As network traffic increases, so proportionately will the processing required of the single backup storage module and the single tape backup module, thus creating a bottleneck at the backup server. In addition, using multiple backup servers to eliminate this problem is not discussed by Gold and Bathie and at any rate, such use would obviate advantages of a first software agent controlling one or more second software agents as previously discussed.

Similarly, Gold and Bathie do not describe a backup and retrieval system operating on a first network device and a second network device as claimed in independent claim 6, in which a management software component that operates on a first network device controls a media software component on a second network device which controls backup of data to a storage device.

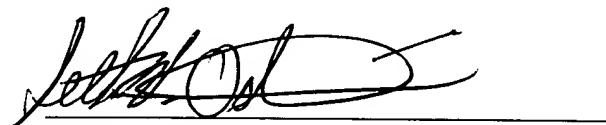
Gold and Bathie also do not describe a backup and retrieval system operating across a network containing a plurality of network devices as claimed in independent claim 11, in which a management software component that operates on a first network device controls a media software component that is communicatively coupled to the management software component and that controls a storage device.

Finally, regarding independent claim 16, Gold and Bathie do not describe a backup and retrieval system for a network comprising a plurality of computing devices comprising a first computing device and a second computing device, including a management software component running on a first computing device, a media software component communicatively coupled to the management software component, at least one backup device communicatively coupled to the media software component, and a client software component communicatively coupled to the management software component and the media software component, wherein the media component software controls the at least one backup device, the management component software controls the media component software, the client component software controls backups of any particular computing device, and at least one of either the media software component or the client software component runs on the second computing device.

The dependent claims are patentable at least by virtue of their dependency on an allowable claim as well as for additional reasons. Allowance of pending claims 1-21 is therefore respectfully solicited. To expedite prosecution of this application to allowance, the examiner is invited to call the applicants' undersigned representative to discuss any issues relating to this application.

Respectfully submitted,

Dated: August 26, 2002



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8-26-02

Date